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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/015,497

12/12/2001

Changhwa Lin

21979

6605

24932

7590

03/30/2006

LAUBSCHER SEVERSON

1160 SPA RD

SUITE 2B

ANNAPOLIS, MD 21403

EXAMINER

DYKE, KERRI M

ART UNIT

PAPER NUMBER

2616

DATE MAILED: 03/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/015,497	LIN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Kerri M. Dyke	2667	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/29/03</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: figure 1 element 24. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3 and 5-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Dahlgren et al. (US 5,754,791).

4. In regards to claim 1, Dahlgren discloses a network switch comprising a plurality of ports (figure 1 elements RP0-RP23 and TP0-TP23), a packet engine for transferring incoming packets to an appropriate outgoing port dependent on a destination address carried in said packet

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(Column 3 lines 12-14 indicate that switch 12 transfers the packets to the appropriate output ports. Column 3 lines 40-59 provide greater detail about the switch.), and a switching database (column 3 lines 21-23) providing switching information to said packet engine, said switching database comprising a low speed main database (central translation unit 26, column 8 lines 22-26) and a high speed cache (local cache memory 101, column 8 lines 13-16, column 13 line 1 – column 14 line 19 [cache is defined as being faster than main memory]), and a controller for transferring switching data between said database and said cache in accordance with a predetermined control policy (Column 8 lines 22-28 indicate that when an address is not found in the cache it is looked for in the central database. When it is found the cache is updated with the address by replacing the least recently used entry.).

5. In regards to claim 2, Dahlgren discloses a network switch as claimed in claim 1, wherein said high speed cache includes a high speed search engine implemented in hardware. Column 9 lines 34-54 describe the search process.

6. In regards to claim 3, Dahlgren discloses a network switch as claimed in claim 1, wherein said controller is a hierarchical instruction set microcontroller. Column 3 lines 21-23 disclose a hierarchical controller.

7. In regards to claim 5, Dahlgren discloses a method of forwarding packets in a network switch, comprising providing a switching database for storing destination address information, said switching database being divided into a main lower speed database and a high speed cache; searching for address information for an incoming packet first in said high speed cache, and in the event said information is not in said high speed cache subsequently searching for said information in said lower speed lower speed database; and controlling the transfer of data

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between said high speed cache and said lower speed database in accordance with a predetermined policy. Column 9 line 6 – column 14 line 19 most fully describes the high speed cache, the lower speed database, the method of searching for address information, and the method of transferring data between the high and low speed areas.

8. In regards to claim 6, Dahlgren discloses a method as claimed in claim 5, wherein database entries are deleted or transferred to said lower speed database when the resources in said high speed cache become low. Column 10 lines 19-45 describe the process for determining the least used entry. Column 8 lines 22-28 indicate that the least used entry is overwritten (i.e. deleted) when the cache is full.

9. In regards to claim 7, Dahlgren discloses a method as claimed in claim 6, wherein database entries that have not been used for a predetermined period of time are marked for deletion. Column 8 lines 27-28 indicate that the least recently used entry is marked for deletion.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dahlgren et al. (US 5,754,791) in view of Wakeman et al. (US 5,740,175 provided by applicant on IDS).

12. In regards to claim 4, Dahlgren discloses a network switch as claimed in claim 3, but not wherein said high speed cache is located in a fast path to support packet forwarding at full line rate.

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Wakeman discloses using a CAM-cache. In column 1 lines 56-58 it is disclosed that the CAM-cache can retrieve mappings in less than 100 ns. Column 2 lines 34-38 disclose that a packet whose destination is stored in the CAM-cache can be forwarded *immediately*. Column 5 lines 22-27 disclose a situation using CAM-caches in which the forwarding is ten times faster than a conventional network.

It would have been obvious to one of ordinary skill in the art to modify Dahlgren's network switch to include Wakeman's CAM-caches because the CAM-caches are faster (Wakeman column 1 lines 56-61) allowing for full line rate forwarding.

13. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dahlgren et al. (US 5,754,791) in view of Bhardwaj (US 5,274,631).

14. In regards to claim 8, Dahlgren discloses a method as claimed in claim 7, but not wherein in the event that an entry cannot be found for an incoming packet, said incoming packet is dropped or forwarded to a designated port group that includes all or part of the ports of said network switch.

Bhardwaj discloses broadcasting a packet to all ports except the originating port if the destination is unknown in column 4 lines 50-59.

It would have been obvious to one of ordinary skill in the art to modify Dahlgren's packet forwarding method to include broadcasting packets when the destination is unknown, as taught by Bhardwaj because doing so allows for the discovery of new addresses, which is necessary in situations such as initialization, as described by Bhardwaj in column 4 lines 59-65.

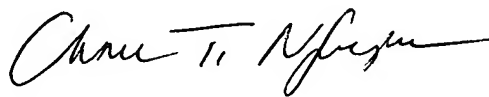
***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kerri M. Dyke whose telephone number is (571) 272-0542. The examiner can normally be reached on Monday through Friday, 7:00 am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on (571) 272-3126. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

kmd



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